REMARKS

Claims 54-85 are pending. Claims 54-57 and 70-73 are allowed. The rejection of claims 54-85 under 35 U.S.C. § 112, first paragraph is withdrawn following amendments filed August 2, 2004 and September 16, 2004.

Claims 58-69 and 74-85 are rejected under new grounds for allegedly lacking enablement under 35 U.S.C. § 112, first paragraph.

Claims 58, 61, 74 and 77 are currently amended to replace the term "contacting" with "introducing". These amendments do not constitute new matter and are supported by the specification as follows.

The specification at page 11 line 33 states that:

"In another embodiment of the invention, the "introducing" or "contacting" is carried out by means....."

thereby indicating that the two terms are used synonymously in the specification. Similarly, at page 22, lines 20-30, the term "introduce" is used in the context of gene transfer according to the claimed subject matter.

In addition, Claims 60, 63, 66, 69, 76, 79, 82 and 85 are currently amended to delete subject matter directed to certain specific cell types that allegedly lack support in the specification. These amendments do not constitute new matter.

For reasons set forth below, it is respectfully requested that the rejection be withdrawn and that the claims be deemed allowable.

1. The Claims Are Enabled

Claims 58-69 and 74-85 are rejected under 35 U.S.C. § 112, first paragraph, for lack of enablement because according to the Examiner:

> the specification, while being enabling for an isolated host cell for protein expression purposes, does not reasonably provide enablement for host cell in gene therapy or any other in vivo use.....Thus, the instant specification fail at the first prerequisite of a gene

> therapy because the specification does not teach involvement of disclosed nucleic acid sequences with a proven pathophysiology of a disease.

Applicants respectfully request that the Examiner reconsider the basis for rejection for the following reasons:

(i) Rejected claims 58, 61, 64, 67 and claims 59, 60, 62-63, 65, 66, 68 and 69 dependent thereon, are directed to a host cell prepared by introducing into the cell isolated nucleic acid or vector of claims 54-57 such that the host cell expresses the rat Progression Suppressed Gene-13 protein. Rejected claims 74, 80 and 83 and claims 75-79, 81, 82, 84 and 85 dependent thereon are similarly directed to cells expressing the isolated nucleic acid or vector of claims 70, 72 or 73.

Applicants assert that the instant specification has cited throughout, detailed methods for producing and using host cells as claimed. For example, disclosure relating to the preparation of host cells having an introduced PSGen13 gene is as follows.

At page 11, lines 22-24, the specification states that:

> "In an embodiment of the invention, the host cell is stably transformed with the recombinant expression construct described herein."

The specification states further at page 11, lines 33-35, that:

> "In another embodiment of the invention, the introducing or contacting is carried out by a means selected from the group consisting of adenovirus infection, liposome-mediated transfer..."

In addition, working examples of the claimed invention are provided (Figures 6 and 8).

These disclosures fully enable one skilled in the art to introduce, select, identify and isolate a host cell expressing a nucleic acid or protein corresponding to the PSGen13 gene sequence.

> "the test for enablement of whether a particular claim is supported by the disclosure in an application requires a determination of whether the disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one of skill in the art to make and use the invention (MPEP 2164.01)"

Furthermore, the skilled artisan would know how to use the claimed host cells based on the disclosure in the specification. For example at page 8, lines 8-16, the invention provides for an isolated PSGen13 protein. Further, at page 8, lines 18-27, the invention provides for an antibody which binds specifically to the isolated PSGen13 protein. A skilled artisan would easily appreciate that the claimed host cell may be used to isolate PSGen13 protein or generate a specific PSGen13 antibody.

Applicants respectfully assert that claims 58, 61, 64, 67, 74, 80 and 83, essentially specifying a host cell expressing rat or human PSGen13 gene or protein are fully enabled in the instant application for the reasons set forth above.

(ii) An additional grounds for rejection under 35 U.S.C. § 112, first paragraph is that claims 60, 63, 66, 69, 76, 79, 82 and 85 allegedly recite several host cells "not commonly used in the art for *in vitro* expression".

Applicants respectfully note that for a claim to be enabled:

> "the specification must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation." (In re Wright, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993).

Applicants provide herewith references (Exhibits 1-4) from the published literature containing experimental data to demonstrate that the host cells recited in claims 60, 63, 66, 69, 76, 79, 82 and 85 have been used in the art, for expression studies as described in the instant application. Exhibit 1, Fisher *et al.*,

2003, describes the utilization of breast, prostate, melanoma, lung, glioblastoma, colon carcinoma, nasopharyngeal carcinoma, cervical carcinoma and neuroblastoma cell lines. Exhibit 2, Schakowski *et al.*, 2004, contains data for leukemia cells. Exhibit 3, Dummer *et al.*, 2004, provides data for lymphoma cells. Exhibit 4, Ye *at al.*, 2004, provides data for thyroid carcinoma cells.

Applicants assert that all cell types originally claimed are enabled for utilization in the instant invention. However, to further prosecution, Applicants, without prejudice have currently amended claims 60, 63, 66, 69, 76, 79, 82 and 85 to delete subject matter directed to a central nervous system tumor cell, an epithelial tumor cell, a non-epithelial tumor cell and a blood tumor cell.

Applicants respectfully assert that the instant specification provides sufficient disclosure for one skilled in the art to make and use a PSGen13-expressing cell based on the arguments presented in section (i) above, and further that host cells in amended claims 60, 63, 66, 69, 76, 79, 82 and 85 are fully enabled for expression of an exogenous PSGen13 gene as claimed. Applicants therefore respectfully traverse the lack of enablement rejection under 35 U.S.C. § 112, first paragraph and request that the claims be allowed.

(iii) The Examiner has stated at page 3, first paragraph of the Office Action that

> "[Thus], the instant specification fail at the first prerequisite of a gene therapy because the specification does not teach involvement of disclosed nucleic acid sequences with a proven pathophysiology of a disease."

Claims 58-69 and 74-85 are rejected under 35 U.S.C. § 112, first paragraph, for allegedly not being enabled for gene therapy.

First and foremost, Applicants respectfully assert that the Examiner is introducing a limitation into the claims which is not there- namely, that the host cells are the result of gene therapy. The claims are directed to a composition of matter- namely host cells into which PSGen13- encoding nucleic acid has been introduced. There is no limitation that specifies how these cells are used or in what context they occur. Nor is gene therapy the sole embodiment for the claimed host cells. Indeed, the Examiner has acknowledged that the host cells can be used to express PSGen13 protein. Such PSGen13 may be used for example to produce an antibody which binds specifically to the isolated PSGen13 protein as stated in the specification at page 8, lines 18-27.

However, even if the claims did read on gene therapy, or if the sole use of the claimed host cells were in gene therapy, the specification is enabling. The instant specification at: (a) page 4, brief description of Figure 6 and Figure 8; and (b) in the Materials and Methods section at page 33, lines 30-36 and page 34, lines 1-10; provides experimental data and description for the production of rodent and human cell lines stably expressing the PSGen13 gene product. Figures 6 and 8 demonstrate that over-expression of the PSGen13 gene product, as contemplated by the instant invention results in the suppression of the transformed phenotype and inhibit anchorage independent growth respectively.

Therefore, Applicants respectfully traverse the rejection based on lack of enablement for gene therapy because: (a) the first prerequisite of a gene therapy has been met by demonstrating that PSGen13 inhibits the transformed phenotype and anchorage independent growth; and (b) to be an effective gene therapy, a disclosed nucleic acid sequence does not necessarily need to have a

proven pathophysiology of a disease. PSGen13 clearly demonstrates the capacity for utilization in gene therapy as disclosed in the instant specification by inhibiting the tumorigenic and metastatic properties of rodent and human cancer cells.

The Examiner has cited several references in the published literature in support of the alleged difficulties in performing gene therapy and lack of any teachings to overcome the technical difficulties in the art connected with gene therapy. The Examiner further states that "the instant specification does not teach a single technical problem being solved for gene therapy art."

Applicants respectfully argue that the rejected claims 58-69 and 74-85 do not read on a solution to a technical gene therapy problem and therefore the Examiner's grounds for rejection is not valid.

However, to facilitate early allowance of the pending claims Applicants submit herewith a Declaration of Dr. Paul Fisher (the "Fisher Declaration") containing data involving an *in vivo* gene therapy utilization of PSGen13 as contemplated in the instant invention. The data enclosed herewith describes treatment of pre-established tumors with a PSGen13 expressing vector (Exhibit B, Figure 1, compare Ad.PSGen13 to control treatments). This data demonstrates that PSGen13 treatment is able to reduce tumor volume in a statistically significant manner and thereby shows that effective cancer gene therapy may be achieved as described in the instant invention.

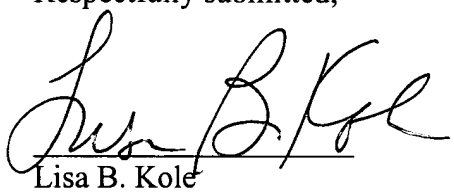
Accordingly, it is requested that the rejection of claims 58-69 and 74-85 under 35 U.S.C. § 112, first paragraph, for lack of enablement be withdrawn.

2. **Conclusion**

For all the foregoing reasons, Applicants request that the claims be deemed allowable. A Notice of Allowance is therefore respectfully requested.

Applicants believe that no additional fee is due in connection with this response. However, should an additional fee be required, the Commissioner is hereby authorized to charge any such fee to Deposit Account No. 02-4377.

Respectfully submitted,



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